

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
4 November 2004 (04.11.2004)

PCT

(10) International Publication Number  
**WO 2004/093734 A3**

(51) International Patent Classification<sup>7</sup>: **C04B 12/02**,  
C09K 3/00

TN, TR, TT, TZ, UA, UG, US (patent), UZ, VC, VN, YU,  
ZA, ZM, ZW.

(21) International Application Number:  
PCT/US2004/007422

(22) International Filing Date: 11 March 2004 (11.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/461,338 8 April 2003 (08.04.2003) US

(63) Related by continuation (CON) or continuation-in-part  
(CIP) to earlier application:  
US 10/057,554 (CIP)  
Filed on 23 January 2002 (23.01.2002)

(71) Applicant (for all designated States except US): ADA  
FOUNDATION [US/US]; 211 East Chicago Avenue,  
Chicago, Illinois 60611 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): CHOW, Laurence,  
C. [US/US]; 20517 Anndyke Way, Germantown, Mary-  
land 20874 (US). TAKAGI, Shozo [JP/US]; 17 Leatherleaf  
Court, Gaithersburg, Maryland 20878 (US).

(74) Agent: ROKOS, Rebecca, P.; BANNER & WITCOFF,  
LTD., 10 South Wacker Drive, Suite 3000, Chicago, Illinois  
60606-7407 (US).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-  
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,  
GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,  
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,  
ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted  
a patent (Rule 4.17(ii)) for the following designations AE,  
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,  
CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE,  
EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,  
JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,  
MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM,  
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ,  
TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM,  
ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD,  
SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY,  
KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG,  
CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT,  
LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF,  
BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,  
TD, TG)
- as to the applicant's entitlement to claim the priority of the  
earlier application (Rule 4.17(iii)) for all designations

**Published:**

- with international search report
- before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

(88) Date of publication of the international search report:  
30 June 2005

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: PREMIXED SELF-HARDENING BONE GRAFT PASTES

(57) Abstract: A bone or dental implant material in the form of a paste includes a mixture of calcium phosphate and/or calcium-containing powders, liquid glycerol, organic acid and gelling agent. The paste is stable, resistant to washout and will harden upon exposure to water. Physical characteristics of the paste, including consistency, porosity, and hardening time, are controlled by the choice and ratio of constituents.

WO 2004/093734 A3

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/07422

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C04B 12/02; C09K 3/00

US CL : 424//682; 106/35, 690, 691

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424//682; 106/35, 690, 691

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0137812 A (CHOW et al.) 26 September 2002 (26.092002), see the entire document.	1-25

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

20 March 2005 (20.03.2005)

Date of mailing of the international search report

19 MAY 2005

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Jean C. Witz  
Telephone No. (571) 272-0700

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US04/07422

Continuation of B. FIELDS SEARCHED Item 3:

EAST, CAPLUS, DIALOG, MEDLINE, INPADOC

search terms: calcium phosphate and acid and (cellulose or gelatin or collagen or chitosan or alginate) and (glycerin or glycol)